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THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA
PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

R E P O R T

relating to the

REDEVELOPMENT OF THE
SCHOOL OF
MILITARY ENGINEERING,
CASULA, N.S.W.

(Eighth Report of 1986)

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(Twenty-Eighth Committee)

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- (1) Resigned 13 February 1986
(2) Appointed 18 February 1986

EXTRACT FROM THE
VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES
NO. 109 DATED THURSDAY, 5 JUNE 1986

32 PUBLIC WORKS COMMITTEE - REFERENCES OF WORK - SCHOOL OF MILITARY ENGINEERING, CASULA, N.S.W., AND WAREHOUSE DEVELOPMENT FOR 21ST SUPPLY BATTALION, MOOREBANK, N.S.W.: Mr West (Minister for Housing and Construction), by leave, moved - That, in accordance with the provisions of the Public Works Committee Act 1969, the following proposed works be referred to the Parliamentary Standing Committee on Public Works for consideration and report:

- (1) Redevelopment of the School of Military Engineering, Casula, N.S.W., and
(2) Warehouse development (Stage 1) for 21st Supply Battalion, Moorebank, N.S.W.

Mr West presented plans in connection with the proposed work.

Debate ensued.

Question - put and passed.

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

REDEVELOPMENT OF THE SCHOOL OF MILITARY
ENGINEERING, CASULA, N.S.W.

R E P O R T

By resolution on 5 June 1986 the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report the proposed redevelopment of the School of Military Engineering, Casula, N.S.W.

The Committee is pleased to report as follows:

THE REFERENCE

1. The works proposed under this reference include the following elements:

- construction of training facilities, administration, accommodation, messing, vehicle maintenance and stores;
- provision of associated roads and engineering services;
- refurbishment of facilities, demolition of substandard installations; and
- upgrading of the Moorebank area mains water system.

2. The estimated cost of the proposed work when referred to the Committee was \$29.7 million at January 1986 prices.

THE COMMITTEE'S INVESTIGATION

3. The Committee's inquiry was advertised in 'The Sydney Morning Herald', 'The Australian', and 'The Liverpool-Fairfield Champion' on 25 June 1986.

4. The Committee carried out a site inspection of the School of Military Engineering (SME), Casula, on 11 August.

5. A public hearing into the proposed redevelopment was held at the SME Assembly Hall on 12 August. At the public hearing the Committee received written submissions from the Department of Defence (Defence) and the Department of Housing and Construction (DHC) and took evidence from representatives of the two departments. The Committee also received a submission and took evidence from Dr John Hutcheson, M.C., about the nature of the proposed redevelopment.

6. At the public hearing Defence undertook to provide the Committee with written answers to a number of questions which were taken on notice. These answers were received on 9 September 1986 and have been incorporated in the transcript of evidence.

7. A list of witnesses who appeared at the public hearing and the organisations which they represented is at Appendix A.

8. The Committee's proceedings will be printed as Minutes of Evidence.

BACKGROUND

9. Location The SME is located at Casula, 30 kilometres south-west of Sydney, 3 kilometres south-east of Liverpool and 4 kilometres west of the Holsworthy Army Barracks.

10. The SME was established at Casula during the Second World War when its role was to train officers and non-commissioned officers for the Corps of the Royal Australian Engineers (RAE). After the war all training for the RAE was concentrated at Casula. The School occupies about 200 hectares used for buildings, outdoors training aids, and close training areas.

11. Functions Members of the RAE are also known as 'sappers'. This term has its origins in antiquity; 'sappers' were responsible for digging 'saps' or trenches and approaches to fortifications.

12. RAE field squadrons are attached to combat units located in Townsville, Brisbane and Holsworthy. They are responsible for providing immediate combat engineering support to the formations to which they are attached. RAE construction squadrons are located in Sydney, Puckapunyal (Victoria) and Perth, and have a responsibility to undertake construction of buildings, roads and airfields. Army works elements, under the control of Chief Engineers, are located in each of the Military District Headquarters in State capitals. A number of RAE reserve units are located in various States. A small RAE design team is located in Sydney and is responsible for carrying out technical design and technical supervision of construction tasks undertaken by other units.

13. Role of SME The role of the SME is to train all ranks of the RAE in military engineering and other specialist skills for various employment categories. In addition, the SME trains selected personnel from other elements of the Army in aspects of:

- accommodation and works management and procedures;
- military engineering;
- fire prevention;
- camouflage and concealment;
- nuclear, biological and chemical defence; and
- the operation and employment of a variety of engineer construction plant, vehicles and equipment.

14. The School trains students from foreign defence forces, other armed services and government departments in selected specialties.

15. SME is also responsible for the development of and advice on engineer doctrine, techniques and training methods and procedures and reviews specialist RAE and other Army publications, pamphlets and manuals.

16. Courses Conducted An average of 58 courses are conducted at SME each year with approximately 1290 students being trained. In 1984/85 training numbers involved the following categories:

210	RAE students
465	Other soldiers attending promotion courses
125	Officers from the Regular Army and Army Reserve
475	Students undergoing courses ranging from plant operators (110), firemen (65), dog handlers (12), materials testing equipment (8)

280 Students undergoing specialist unit instructor courses in nuclear, biological and chemical defence (100), Camouflage (100) and mine warfare (80).

17. In 1986/87 the School conducted 66 courses involving about 1500 students. Courses vary in duration from six months to one week.

18. Staff and Organisation The School has the following staff numbers:

Officers	Other Ranks	Civilian	Total
32	285	56	373

19. For training and administrative purposes the School is organised into a number of training wings:

Development Staff
Field Engineering
Operations
Engineering Services
Plant, Roads and Airfield
Nuclear, Biological and Chemical Defence
Training Support

20. Training Areas A number of outdoors training areas are located on the 200 hectare site at which students undergo practical training in various engineering disciplines, techniques and equipment. These training areas include:

- earthmoving equipment;
- materials handling;
- water supply and purification;
- dry gap bridging;

- watermanship, rafting and wet gap bridging on the adjacent non-tidal portion of the Georges River.

21. In addition, a marina and landing hards are provided at Camp Sapper, downstream on a tidal section of the Georges River. Demolition training is carried out on the nearby Holsworthy Range.

THE NEED

22. Defence submitted there is a need to redevelop the SME and to provide new administration, training and accommodation facilities. Much of the School is housed in poor quality, high maintenance temporary structures provided during the Second World War. The overall layout of the School is not oriented to contemporary training requirements.

23. Need to remain at Casula Before describing the existing facilities at the SME in some detail, it is prudent to establish the long-term viability of the School remaining at its present location. Three factors are relevant in this regard. First, the degree to which the School relies on the adjacent and Sydney-wide infrastructure to support its activities; secondly, the extent, if any, of urban encroachment on areas surrounding the site which would affect or reduce the viability of the School; and thirdly, the value of investment in facilities at the School.

24. Reliance on Infrastructure Training at SME relies on the infrastructure of the Sydney/Liverpool area to provide:

- specialist building trades courses at Miller Technical College (approximately 11 kilometres from SME);

- fire-fighting training in conjunction with the Department of Aviation and commercial appliance manufacturers;
- trade training for RAE apprentices with civilian firms;
- search training for explosive detection dogs with Commonwealth authorities and other services;
- radiological materials handlers' training with the Australian Atomic Energy Commission at Lucas Heights; and
- other military training facilities at Holsworthy Range and Barracks.

25. Support of training is reliant on civilian manufacturing, supply and repair firms located in the Sydney/Liverpool area to provide support for heavy and complex equipment and vehicles. The Sydney/Liverpool area also provides the civilian workforce at the School.

26. Urban Encroachment Urban encroachment has constrained the extent of artillery firing on the nearby Holsworthy Range. Defence advised that there are currently no perceptions of any urban encroachment into the large logistics, supply and workshop complexes adjacent to the site occupied by the School. Defence advised that no formal requests have been received from the State Government for part of the land to be handed to the State. Defence therefore believe there is no threat in the long-term to the School remaining at Casula.

27. Facilities Investment Defence advised the value of investment in facilities at SME is as follows:

- existing buildings considered suitable for retention - \$10.25 million;
- sports ovals - \$250,000; and
- outdoors training facilities - \$6 million (at least 47,000 man-days of effort have been devoted to the development of these facilities.)

28. Committee's Conclusion The principal advantages of the School of Military Engineering remaining at Casula centre on the technical and industrial support base provided by the Sydney/Liverpool and adjacent Army support areas. In the absence of perceptions of any urban encroachment, these factors and the investment value of facilities available necessitate School of Military Engineering remaining at its present location.

29. Existing Facilities As mentioned above much of the School is housed in poor quality, high maintenance temporary structures provided during the Second World War. The following paragraphs describe various categories of buildings considered by Defence to be substandard.

30. Sleeping Accommodation Apart from barrack blocks for rank and file constructed during the 1960s all other sleeping accommodation comprises old single and two-storey timber buildings which are liabilities in terms of repairs and maintenance, have reached the end of their economic life and should be replaced. All accommodation is below current Scales and Standards and lack modern amenities. Defence believe the four rank and file barrack blocks which are of brick construction could be refurbished and upgraded to current Scales and Standards. Defence have identified a need to refurbish and

upgrade one block, and believe the remaining three blocks would be adequate for short-term students if occupied on a 2-students per room basis.

31. Headquarters Building The Headquarters of the SME is located in 2 two-storey detached timber buildings. Defence advised that they attract high maintenance costs, lack modern amenities and proper fire protection and evacuation provisions.

32. Administration Facilities Administration elements are accommodated in several single-storey brick buildings. This dispersal and somewhat ad hoc usage of available space has resulted in what Defence described as poor working conditions. Amenities are inadequate and the quality of accommodation is generally below established standards.

33. Sergeants' Mess The Sergeants' Mess is housed in a number of old single-storey timber buildings which have undergone various degrees of refurbishment over the years. The kitchen and dining area are housed in detached single-storey timber huts. The kitchen equipment is out of date. Generally, internal floors and wall finishes are well below modern standards. Defence contend the facility is inadequate and in need of urgent replacement.

34. Officers' Mess The Officers' Mess is housed in a single-storey brick building which is generally satisfactory. Defence believe that the kitchen equipment and fittings have reached the end of their economic life. The standard of finish and facilities available for kitchen staff are well below acceptable modern standards.

35. Q Store This is housed in a number of steel buildings of generally poor quality which have limited internal space. Some buildings are structurally unsound, others below acceptable health standards and all are beyond the end of their economic lives.

36. Transport Facilities The Transport group occupies semi-enclosed steel structures with brick end walls and two single-storey brick buildings located around a vehicle hardstand area. The Committee was advised that there is extensive corrosion evident on the trusses. The brick buildings are in a poor condition structurally due to cracking of floors and walls.

37. Vehicle Workshop and Hardstands The workshops comprise several temporary, steel trussed and sheet framed structures. They lack adequate space and engineering facilities and services are below acceptable modern standards for vehicle repair and maintenance.

38. Hardstanding used for parking earthmoving equipment is extensively cracked and inadequate for vehicle movements and parking requirements. Staff amenities, change rooms, vehicle washing and draining facilities are in a poor condition.

39. Engineering Services These were added on an 'as required' basis during the development of the School. As a consequence of their age and condition they are subject to frequent failure and costly repairs and maintenance.

40. Water Supply Defence advised that the existing Moorebank Military Area water mains system is inadequate to service the requirements for fire-fighting for current and future development in the Moorebank/Casula military area. It is therefore necessary to upgrade the mains system to provide a reliable and effective fire-fighting capability.

41. Study Areas and Classrooms There are 10 classrooms available for indoor instruction at the School. There is also a soils laboratory and a model room. The capacity of the classrooms ranges from 30 to 24 students. They are located in single-storey brick and timber buildings of various ages. All lack adequate ventilation, environmental control and acoustic treatments necessary for effective instruction.

42. Consequences of Poor Facilities The Committee questioned Defence on the effects on failure rates amongst students undergoing courses at the School which could be attributed to the generally poor conditions described above. Defence advised that it did not believe present facilities result in failures or an inability by students to complete their training. There is, however, an adverse attitude and responsiveness of students if they are required to undergo training or conduct study after-hours in undesirable facilities. If provided with adequate classrooms and areas for after-hours study they would be able to learn and retain more and consequently be more effective.

43. Adequate Facilities The foregoing described what Defence considers the main deficiencies in facilities available at the SME. It should be pointed out that a number of these facilities can be upgraded or modified to bring them up to contemporary standards and requirements. Other facilities are adequate for present and future requirements.

44. Committee's Conclusion Facilities for accommodation, administration, indoors training and support activities at the School of Military Engineering are below acceptable standards and should be replaced or refurbished.

THE PROPOSAL

45. The proposal is to redevelop the SME by providing new buildings for training, administration, accommodation, messing, vehicle and plant maintenance and stores. It is also proposed to refurbish a number of existing buildings, to provide engineering services and roadworks and to upgrade the Moorebank area water mains system.

46. The following paragraphs describe the master planning considerations which determined the siting of the proposed new buildings, their general planning and design, the various components of the proposed work and matters related to each component which arose at the public hearing.

47. Master Planning DHC tabled a comprehensive master planning report at the public hearing which examines existing land use activities, traffic, transport, parking, accommodation and environmental design factors. The Master Plan integrates five elements:

- zone plan;
- existing conditions;
- roads;
- services; and
- landscape.

48. The zone plan divides the site into five functional zones:

- accommodation;
- recreation;
- training;
- industrial; and
- control.

49. It recognises that training and accommodation areas are fixed and aims to separate accommodation zones from working zones and noisy work areas from quiet instructional areas.

50. The zone plan uses recreational areas as buffers between potentially noisy areas and quiet accommodation areas. The control zone embraces Army heritage areas and buildings including the RAE Chapel, Memorial and Museum, and administration areas. The control zone is flanked by indoor training, recreation and accommodation zones.

51. Planning and Design General planning and design of the proposed work has been guided by the following master planning and construction considerations:

- integration with existing facilities and road systems;
- the requirement for efficient movement of staff, students and vehicles within the complex;
- the presence of and the need to improve some structures and roadways;
- utilisation and supplementing of tree plantings; and
- economy of construction, low energy consumption and minimal maintenance characteristics for buildings.

52. Proposed New Buildings New buildings will comprise the following:

- Headquarters;
- Indoor training facility;
- Unit transport compound;

- Technical Support workshops and facilities;
- Quartermaster Stores;
- Residential accommodation for Officers, Senior Non-Commissioned Officers and rank and file;
- Sergeants' Mess.

53. Other training facilities comprising:

- instructional equipment operation and maintenance bays;
- simulated fire station;
- nuclear, biological and chemical defence training chamber;
- materials testing laboratory;
- field engineering and bridging offices;
- corps training and apprentice office building.

54. A site plan showing the location of proposed new buildings and other elements of the proposed work is at Drawing B-1, Appendix B. Construction details are at Appendix C.

55. Headquarters Building This will be located on Chatham Avenue between the entrance guard house and the RAE Memorial. It will be a single-storey building and will provide office accommodation for the Commanding Officer, support staff and general administration. Provision has been made for a conference room. A guardhouse section will be incorporated in the building. A plan and elevation of the building is at Drawing B-2, Appendix B.

56. Indoor Training Facility This facility will be located adjacent to the RAE Memorial, Museum and Chapel. It will contain classrooms, syndicate rooms, a library, model room, computer room, drafting room, a photographic studio and offices.

The facility will be single-storey with buildings grouped around internal courtyards. Its formal entrance will face the RAE Memorial. A plan and elevation of the building is at Drawing B-3, Appendix B.

57. The Committee questioned a number of aspects of the location and design of the Headquarters building and the Indoor Training Facility.

58. First, the reasons for providing two separate buildings. Defence submitted that the Headquarters will control all facets of the School - training, administration, control, living accommodation.

59. Visitors to the School tend to communicate with officials located in the Headquarters. Students, on the other hand, require an environment free of distractions caused by other activity in the School. Defence maintained it is essential that classrooms and instructors' offices are located away from the Headquarters, the industrial area and other housekeeping activities.

60. Secondly, whether both buildings will be provided with air conditioning. The Committee was advised that the Indoor Training Facility will be provided with air conditioning, the Headquarters not. The reason for the latter is that Casula is located in a temperate climate zone. The average number of hot days with temperatures exceeding 30 degrees Celsius is only 10 in any calendar year. DHC officials admitted that there will be some days of discomfort during each year but passive solar assistance will be provided in the design of the building to make it as comfortable as possible on hot days without providing air conditioning.

61. The number of people to be housed in the Indoor Training Facility would increase heat and it is considered reasonable to provide optimum efficiency in the teaching environment.

62. Thirdly, the number of classrooms to be provided in the Indoor Training Facility. Under present arrangements there are 10 classrooms, a soils laboratory and a model room available. The new facility will contain seven classrooms, a theatrette, model room, audio visual centre and drafting room. Classrooms will have larger capacity than at present. Defence advised the number of classrooms to be provided will be adequate.

63. The Committee also questioned the number of offices to be provided in the facility. Defence stated that Commanders of training wings will be provided with separate offices (about 12 square metres). In most other cases two instructors would share an office.

64. Industrial and Practical Training Facilities Industrial facilities for vehicle and plant parking and associated teaching facilities will also be provided and will include the following components:

- Plant, Roads and Airfield Wing Offices, classrooms and stores, equipment servicing and training bays and a plant storage compound;
- Technical Support workshop, offices, plant and vehicle servicing bays and parking area;
- Unit Transport Compound, Office and vehicle parking bays;

- Engineering Services Wing - (fire training) classroom, training compound. The building will be single-storey with undercover parking for Army fire vehicles;
- The nuclear, biological and chemical defence training chamber will be located on the southern side of the School;
- Field Engineering and Bridging Offices and Hardstand;
- Oil and Lubricant store;
- Diesel refuelling plant;
- Corps training and apprentice squadron buildings; and
- Quartermasters will be located in a single-storey building which will be provided with an armoury.

65. Accommodation Requirements As mentioned above, existing accommodation is provided in sub-standard facilities. The following bed space capacity is available when rooms are allocated along current scales:

Officers	SNCO	Rank and File
61	39	214

66. Defence advised that total accommodation requirements for staff and students are as follows:

	Staff	Students	Total
Officers	10	35	45
SNCOs	13	47	60
Rank and File	156*	164**	320

(* Staff and Apprentices) (** Short-term students)

The requirement will be met as follows:

- Officers and Senior Non-Commissioned Officers - new construction;

- Rank and File:
 - 156-bed spaces through new construction;
 - 39-bed spaces through refurbishment of one existing 80-bed space barrack block.
 - balance of 125 accommodated in three existing barrack blocks - two persons per room - short-term students.

67. Utilisation of Accommodation The Committee questioned the extent to which the accommodation would be utilised. Defence advised as follows:

- Officers and SNCOs - 100 per cent for eight months and approximately 60 per cent for the remainder of the year;

- Rank and File - 100 per cent for seven months with greater than 60 per cent for the remainder of the year.

68. Modular Design The new accommodation to be provided will consist of single-storey modules. It is proposed to provide single-storey modular-type residential accommodation for 45 officers, 60 senior non-commissioned officers and 156 rank and file. DHC advised that the accommodation will conform to current Defence Scales and Standards.

69. The Committee asked Defence to explain in more detail the rationale for adopting 'modular' type accommodation in favour of more traditional barrack blocks. Defence advised that traditional 80-person barrack blocks were originally designed to house an Army company in a disciplined rigidly structured environment. At SME personnel of all ranks in the Army are required to attend live-in study courses, in some cases for considerable periods. They are not required to live in a regimented unit structure or environment.

70. For these reasons the Army does not believe the provision of traditional barrack block accommodation is the most appropriate. Modular living accommodation is not a departure from the norm. Defence pointed out that the Army has provided modular accommodation at a number of establishments including the Army Apprentices School at Bonegilla, the Armoured Centre at Puckapunyal and at Randwick, in Sydney. The provision of modules comprising four single and a common room is a trend away from large barrack blocks. Plans and elevations of modular accommodation units are at Drawings B-4 and B-5, Appendix B.

71. DHC advised that single-storey structures provide a number of other advantages including ease of entry and exit. DHC advised that a cost study revealed single-storey accommodation modules are more economic to construct. They do not require additional space for stairwells and corridors. In addition, soils at Casula are reactive; it is more economic to provide single-storey structures to minimise foundation and footing requirements.

72. It is also proposed to upgrade an existing rank and file barrack block. Four-person bedrooms will be converted into single person rooms by partitioning. New carpet, retiling, repainting and modifications to toilets will be provided and

carried out. The barrack block is equipped with fire alarms which will be retained and increased.

73. Sergeants' Mess A new single-storey Sergeants' Mess will be provided and located adjacent to senior non-commissioned officers' accommodation. The dining room and ante-room will overlook a landscaped courtyard. A plan and elevation of the building is at Drawing B-2, Appendix B.

74. Rank and File Mess The kitchen of the Rank and File Mess will be enlarged to provide a new ration store.

75. Refurbished Buildings A number of buildings of brick and relatively recent construction will be refurbished. They are:

- Officers Mess - the kitchen will be refurbished with new internal finishes and services;
- Assembly Hall - this will be modified to provide a gymnasium for sports training and recreation;
- Regimental Aid Post - to be upgraded internally and provided with ambulance parking;
- Brick Building - a brick building adjacent to the Instructional Training Facility will be refurbished to provide accommodation for training aids, explosive ordnance disposal and Army Reserve instructional staff.

76. Water Supply Unrelated to the overall redevelopment of the SME will be the upgrading of the existing Moorebank Military Area water mains system. This will involve the construction of new reservoirs and the provision of associated pumping equipment to replace existing water tanks. New underground pipelines and pumping equipment will be provided from the Metropolitan Water Sewerage and Drainage Board mains to supply the reservoirs. New underground pipelines will be provided from the reservoirs to connect to existing mains to form a ring main system.

77. Reaction to the Proposal Dr John Hutcheson, M.C., a former Commanding Officer of the School, presented a submission and gave evidence at the public hearing. The submission questioned a number of aspects of the proposal. It suggested:

- medium or high-rise buildings should be constructed to maximise use of available land and views;
- the redevelopment should provide room for expansion;
- adoption of scattered facilities loses opportunities to create larger buildings whose architecture would give credit to Australian construction professions and which could be comparable to overseas Military Schools such as West Point.

78. A number of specific comments made by Dr Hutcheson including separate Headquarters and training facilities, master planning, and modular accommodation units have already been addressed in this report. The Committee believes the general concept of ground level living and working facilities which is proposed is more suited to the needs of the School and is compatible with its environment.

79. Benefits to Result from the Proposal Defence advised that the effectiveness and efficiency of training at SME will improve markedly following completion of the proposed work. There will be an improvement in the standard of living accommodation for all ranks. New classrooms, workshops and laboratories will provide a more positive learning and teaching environment. Defence believe the morale of staff and students will be improved which will contribute to greater job satisfaction and lead to the retention of valuable trained manpower.

80. Specific capabilities which will be gained include:

- a functional fire station and watch room for Army fire service training;
- purpose-designed classrooms, a model room and a materials testing laboratory;
- enhanced instructor access to training development staff, training aids and production facilities, reference library and computer training area;
- earthmoving plant training bays; and
- earthmoving plant and bridging equipment washdown facilities.

81. Committee's Conclusion The concept and scope of the redevelopment of the School of Military Engineering effectively utilises available functional areas consistent with the master plan and provides accommodation, instructional and support facilities at a scale consistent with its role.

ENVIRONMENTAL CONSIDERATIONS

82. DHC advised that the proposed construction will be carried out within an established military area, away from the boundaries of the site and will not have an adverse effect on adjoining areas.

83. The proposal was assessed by Defence in accordance with the Administrative Procedures under the Environment Protection (Impact of Proposals) Act 1974 and its impact was determined to be minimal.

84. The Committee questioned Defence about the effects of training activities involving earthmoving equipment and small demolition charges on nearby residents and properties. Defence acknowledged that some training activities at the School produce noise, dust and smoke, but assured the Committee that their levels are kept within limits accepted by adjoining residents and Liverpool City Council.

85. The Committee also questioned Defence about the nature of substances used for nuclear, biological and chemical defence training and how, if any of these substances are considered dangerous, they are stored.

86. Defence advised the Committee that there are no means available for using simulants in training for biological defence. A number of radioactive sources are used to enable the testing and calibration of equipment. These sources are fewer in number and possess a lower degree of radiation than is found in the average hospital. They are securely and adequately contained. In relation to chemical defence training a simulant is used to confirm that masking drills are properly carried out. These simulants are stored safely, have no long-term persistent effects, and are used in a small part of a larger training area.

CONSULTATIONS

87. DHC advised that development of the proposal included consultations with the following organisations:

- Liverpool City Council
- Prospect County Council
- Australian Gas Light Company
- Department of Main Roads
- Metropolitan Water Sewerage and Drainage Board

USE OF CONSULTANTS

88. The proposal has been developed by a team of consultants from the private sector under the management of DHC. DHC advised that subject to the project proceeding it is intended that similar consultancies will be established during documentation of the project. Construction will be undertaken using the resources of the private sector following competitive tendering. The design of the upgrading of the Moorebank Military Area Water mains system will be carried out by DHC.

89. The Committee questioned Defence on whether any of the work could or would be undertaken by RAE construction personnel. Defence advised there is no intention to do so. Construction squadrons are committed to a number of other tasks including the construction of road works, and airfields.

TIMETABLE AND COSTS

90. DHC advised that subject to Parliamentary approval tenders would be called in 1986/87 initially for the upgrading of the Moorebank Area Water Supply. This would be followed by separate contracts to allow for the orderly commitment and progression of

work. The sequencing of work is considered to be essential to ensure the continued operation of the School. It is expected that the project will take 48 months to complete.

91. The Committee asked DHC if it were possible to reduce the construction period. DHC cited a number of examples to demonstrate that the relatively long construction period arises from sequencing the construction of various components. The new Headquarters building would need to be completed before the old building can be demolished. Work on the indoors training facility can then commence. For these reasons it would be extremely difficult and more costly to compress the construction period. It was pointed out, however, that detailed arrangements are under consideration. For example, new other ranks accommodation could be used for Senior Non-Commissioned Officer or Officer accommodation in the early stages of construction so other sites could be cleared more quickly.

92. The Limit of Cost for the proposed work is \$29.7 million at January 1986 prices. DHC advised that they are confident in the accuracy of the estimate. It is only subject to escalation due to inflation. In current briefing terms they are confident that the project can be contained within costs.

93. Committee's Recommendation The Committee recommends construction of the work in this reference.

RECOMMENDATIONS AND CONCLUSIONS

94. The recommendations and conclusions of the Committee and the paragraph in the report to which each refers are set out below:

- | | <u>Paragraph</u> |
|---|------------------|
| 1. THE PRINCIPAL ADVANTAGES OF THE SCHOOL OF MILITARY ENGINEERING REMAINING AT CASULA CENTRE ON THE TECHNICAL AND INDUSTRIAL SUPPORT BASE PROVIDED BY THE SYDNEY/LIVERPOOL AND ADJACENT ARMY SUPPORT AREAS. | 28 |
| 2. IN THE ABSENCE OF PERCEPTIONS OF ANY URBAN ENCROACHMENT, THESE FACTORS AND THE INVESTMENT VALUE OF FACILITIES AVAILABLE NECESSITATE THE SCHOOL OF MILITARY ENGINEERING REMAINING AT ITS PRESENT LOCATION. | 28 |
| 3. FACILITIES FOR ACCOMMODATION, ADMINISTRATION, INDOORS TRAINING AND SUPPORT ACTIVITIES AT THE SCHOOL OF MILITARY ENGINEERING ARE BELOW ACCEPTABLE STANDARDS AND SHOULD BE REPLACED OR REFURBISHED. | 44 |
| 4. THE CONCEPT AND SCOPE OF THE REDEVELOPMENT OF THE SCHOOL OF MILITARY ENGINEERING EFFECTIVELY UTILISES AVAILABLE FUNCTIONAL AREAS CONSISTENT WITH THE MASTER PLAN AND PROVIDES ACCOMMODATION, INSTRUCTIONAL AND SUPPORT FACILITIES AT A SCALE CONSISTENT WITH ITS ROLE. | 81 |
| 5. THE LIMIT OF COST FOR THE PROPOSED WORK IS \$29.7 MILLION AT JANUARY 1986 PRICES. | 92 |

6. THE COMMITTEE RECOMMENDS CONSTRUCTION OF THE
WORK IN THIS REFERENCE.

93

(D.J. FOREMAN)
Chairman

Parliamentary Standing Committee
on Public Works
Parliament House
CANBERRA

9 October 1986

APPENDIX A

LIST OF WITNESSES

Cross, Brigadier F.J., Director-General, Accommodation and Works (Army), Department of Defence, Canberra, Australian Capital Territory

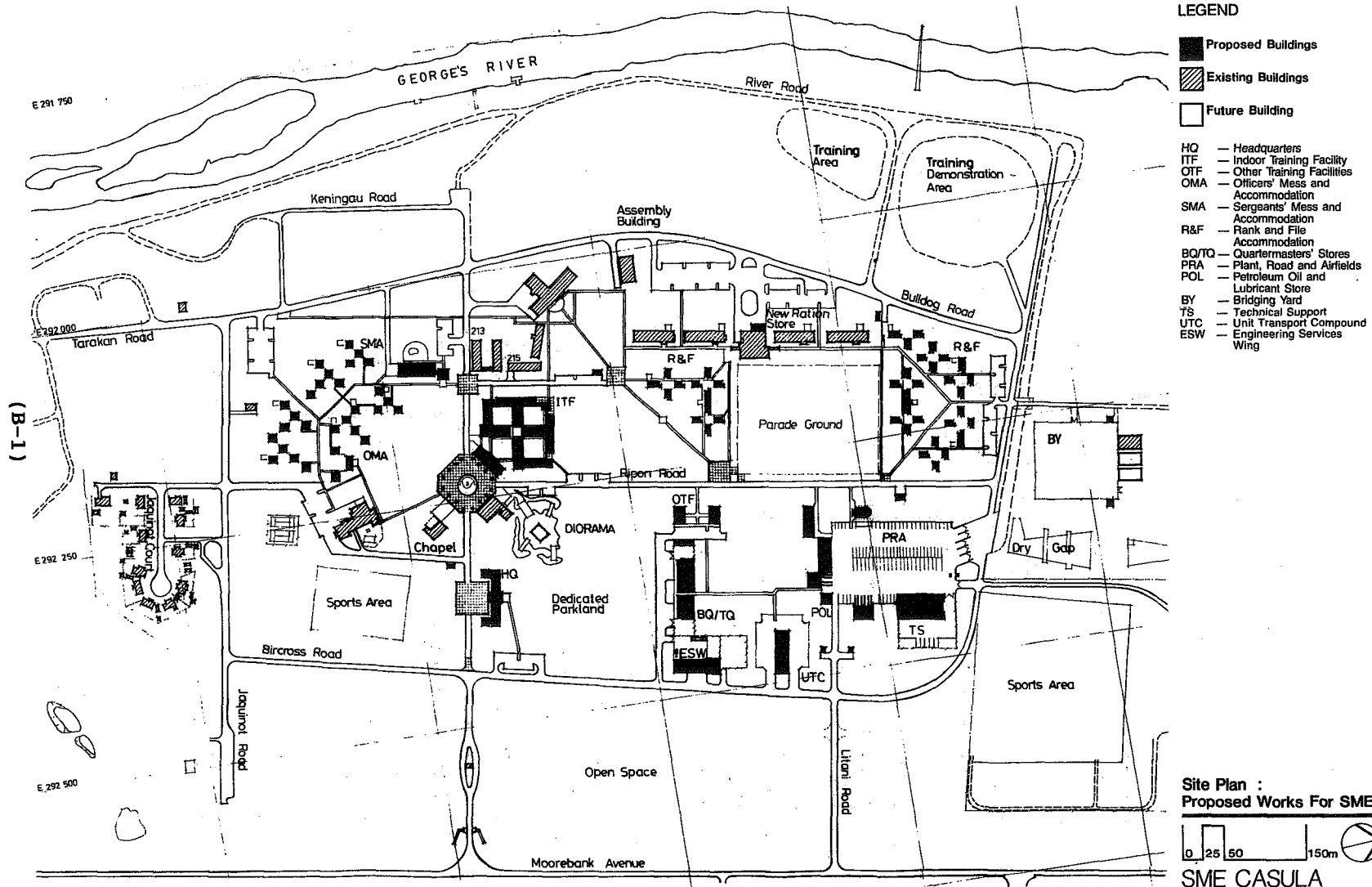
Hutcheson, Dr J.M., Senior Lecturer, School of Building, University of New South Wales, Sydney, New South Wales

Lewicki, Mr M.J., Project Manager/N.S.W. Region, Department of Housing and Construction, Australia Square, Sydney, New South Wales

McKinnon, Lt-Col R.J., Project Manager, Directorate-General, Accommodation and Works (Army), Department of Defence, Russell Offices, Canberra, Australian Capital Territory

Rose, Lt-Col P.R., Commanding Officer and Chief Instructor, School of Military Engineering, MILPO, Liverpool, New South Wales

Williams, Mr M.B., Chief Architect, Department of Housing and Construction, 470 Northbourne Avenue, Dickson, Australian Capital Territory



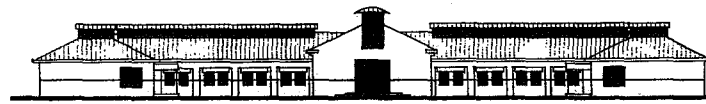
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APPENDIX B



EAST ELEVATION

SERGEANTS' MESS

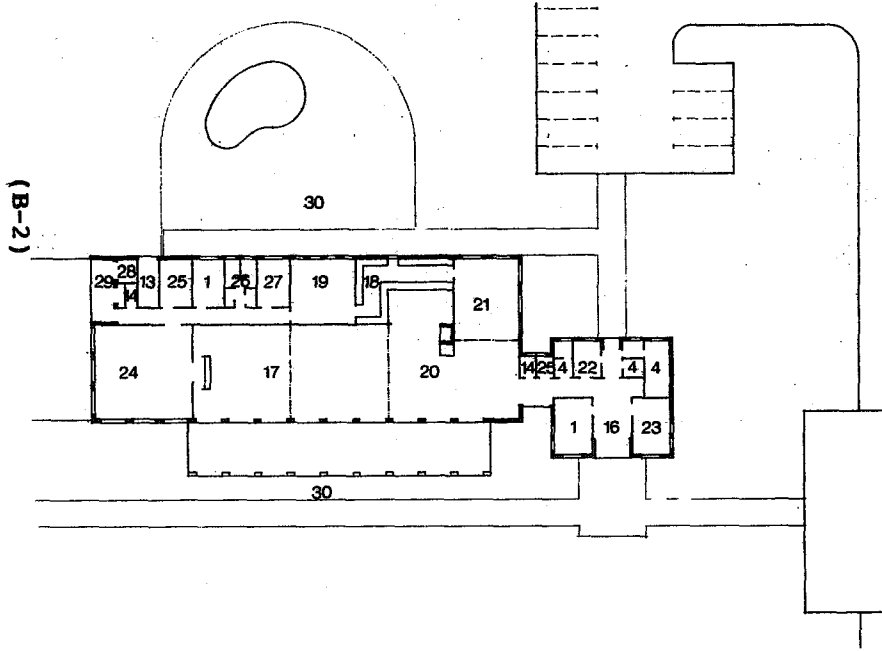


SOUTH ELEVATION

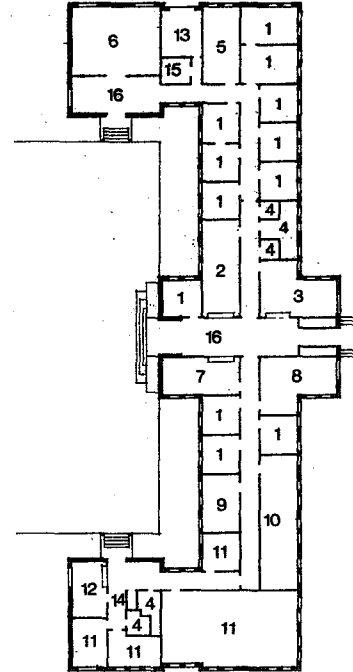
HEADQUARTERS

LEGEND

- 1. Office
- 2. Orderly Room
- 3. Registry
- 4. Toilets
- 5. Archives
- 6. Conference
- 7. Play Office
- 8. Reproduction Centre
- 9. Lunch Room
- 10. Typing
- 11. Sleeping
- 12. Guard Room
- 13. Plant
- 14. Cleaner
- 15. Switch Room
- 16. Lobby
- 17. Dining Room
- 18. Bar
- 19. Bar Store
- 20. Ante Room
- 21. Billiard Room
- 22. Cloak Room
- 23. Television Room
- 24. Kitchen
- 25. Storage
- 26. Staff Toilet, Shower & Change
- 27. Staff Dining
- 28. Bin Storage
- 29. Loading Dock
- 30. Courtyard



PLAN



PLAN

Headquarters Building
Sergeants' Mess



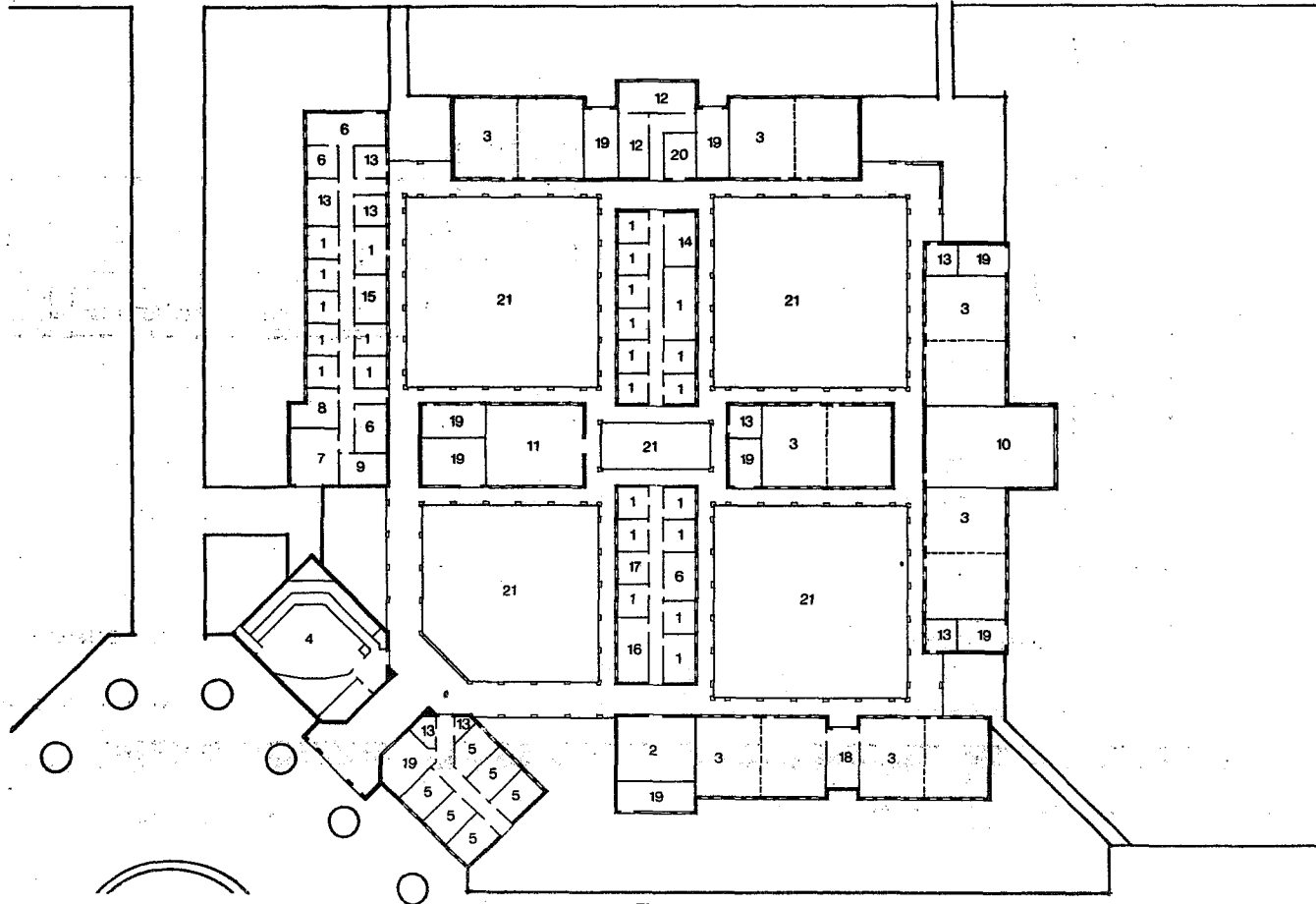
SME CASULA



NORTH ELEVATION

LEGEND

- 1. Offices
- 2. Audio Visual Centre
- 3. Classroom
- 4. Student Model Room
- 5. Syndicate Room
- 6. Store
- 7. Photography Studio
- 8. Graphic Design
- 9. Dark Room
- 10. Drafting Classroom
- 11. Reference Library
- 12. Computer Facility
- 13. Toilets/Shower & Change
- 14. Drawing Office
- 15. NBCD Laboratory
- 16. Briefing/Work Room
- 17. Training Aids Preparation Room
- 18. Rear Projection
- 19. Plant
- 20. Switchroom
- 21. Courtyard



PLAN

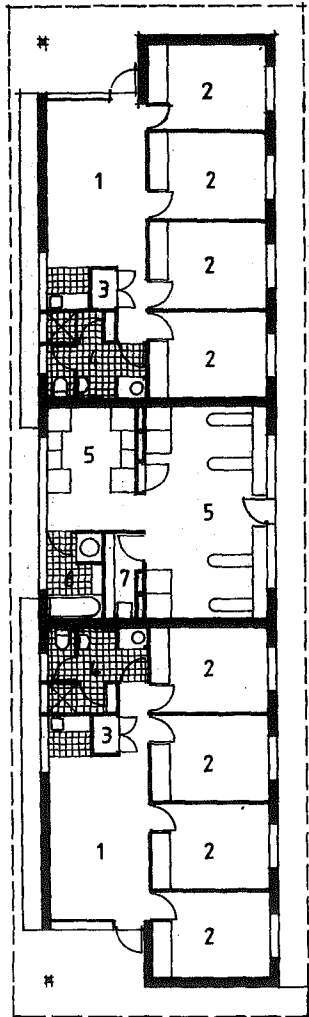
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Indoor Training Facility

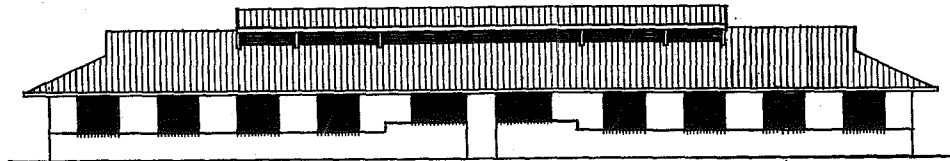


SME CASULA

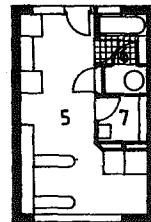
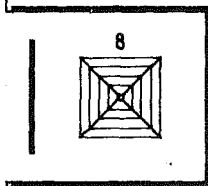
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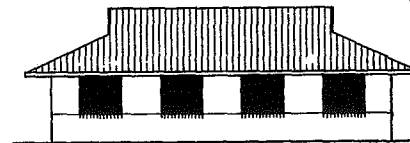
PLAN : EIGHT BED UNIT & 32 MAN LAUNDRY



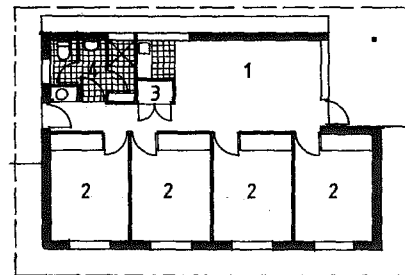
NORTH ELEVATION : EIGHT MAN UNIT & 32 MAN LAUNDRY



PLAN : 16 MAN LAUNDRY ATTACHMENT



NORTH ELEVATION : FOUR BED UNIT



PLAN : FOUR BED UNIT

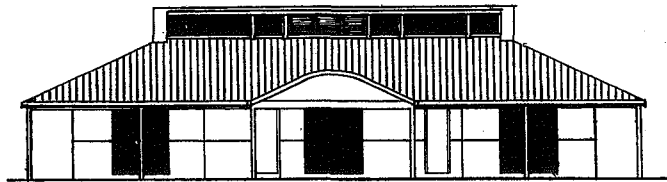
LEGEND

- 1. Common Room
- 2. Bedroom
- 3. Box Room
- 4. Toilet
- 5. Laundry
- 6. Bathroom
- 7. Cleaner
- 8. Drying Court

Rank & File Accommodation



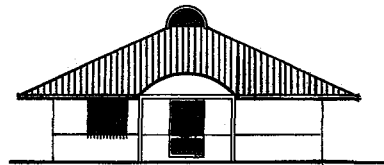
SME CASULA



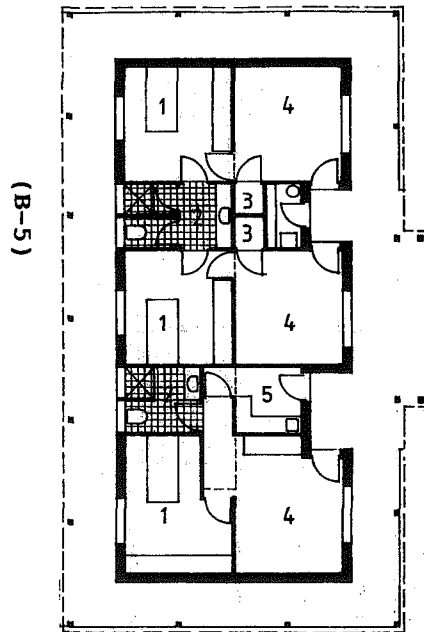
NORTH ELEVATION :
COMMANDING & SENIOR OFFICERS

LEGEND

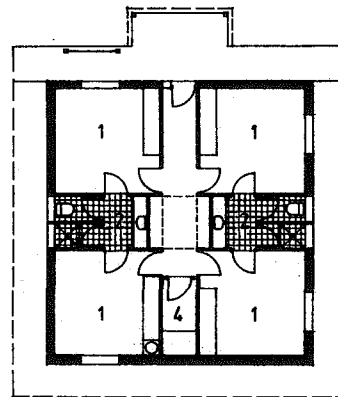
- 1. Bedroom
- 2. Bathroom
- 3. Box Room
- 4. Sitting Room
- 5. Batman



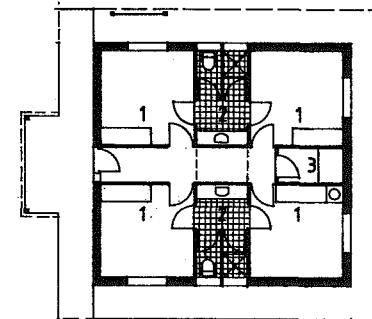
ENTRY ELEVATION :
JUNIOR OFFICERS



PLAN :
COMMANDING & SENIOR OFFICERS

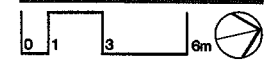


PLAN :
JUNIOR OFFICERS



PLAN :
STUDENT UNITS

Officer SNCO
Accommodation



SME CASULA

CONSTRUCTION DETAILS

1. Structure Soil conditions range from slightly plastic clay to loose clayey sands.
2. Building sub-structure will consist of specially designed riant slabs and footings.
3. Buildings will be generally single-storey with steel portal frame wall and roof structure. Accommodation units will have load bearing walls and timber truss roofing.
4. Materials and Finishes Buildings will generally have full height face brick external walls. Workshops and stores will have upper portions of walls clad in prefinished metal. Roofing will be prefinished metal with sarking and insulation over all internal areas. Windows will be aluminium frame.
5. Internal wall finishes will be cement rendered, painted or tiled as appropriate. Internal lightweight partitions will be line with pasterboard and painted. Floor finishes will be carpet, generally in office, teaching and residential areas, and sheet vinyl, non-slip ceramic paving tiles, suspended computer floor, timber parquetry, granolithic and and steel trowelled concrete as appropriate in other areas.
6. Energy Conservation Measures The buildings have been designed for thermal efficiency and employ passive solar design priciples of orientation, sunshading, thermal mass and appropriate insulation. Additional measures to assist management of energy consumption include off-peak electric hot water, use of natural gas, time control of roof lighting and photo-electric switching of external lighting.

7. Mechanical Services Buildings will be naturally ventilated with the exception of the instructional training facility which will be air conditioned. Gas-fired hot water radiators, and oil-filled electric radiators will provide heating in office and accommodation areas. Gas-fired radiators will provide heating in workshops. Compressed air will be provided to workshop service bays.

8. Electrical Services A new High Voltage ring main linking six new substations will be installed. Electrical power will be supplied by underground cables to buildings and to external lighting.

9. Fire Protection Thermal detectors and manual alarm call-points will be installed in non-workshop buildings. Independent wet-pipe fire sprinkler installations will be provided to Q stores and workshops. A halon gas system will be provided for the computer room in the instructional training facility.

10. Hydraulic Services New drainage and water mains will be provided. Hydraulic services will comprise stormwater drainage, sewer drainage, hot and cold water.

11. Stormwater drainage will be reticulated to discharge into the Georges River. Sewer drainage will be reticulated to the Army Sewage treatment works at Holsworthy.

12. Roads and Car Parking New roads will be provided to complete a ring road system. The ring road will carry service vehicle traffic. Roads within this system will be used mainly by pedestrians, emergency and visitor vehicles. Car parking areas will be provided at these facilities which attract vehicular traffic.

13. Landscaping Those areas of the School directly affected by the proposed redevelopment will be landscaped in keeping with the present character of the site. Additional landscaping will be provided along Chatham Avenue to enhance the existing planting along the main entrance.